

REMARKS

Claims 1-13 are all the claims pending in the application. Claims 1 and 7-13 stand presently rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins et al (US Patent No. 6,285,426). Claims 2-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins and further in view of Naito (US Patent No. 6,091,469) and Zimmerman et al (US Patent No. 5,598,281). Finally, claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins in view of Bao et al (US Patent No. 6,266,108). In addition, the drawings are objected to.

Formal Matters:

Information Disclosure Statement of August 1, 2003

Applicant filed an Information Disclosure Statement on August 1, 2003, and respectfully requests the Examiner to initial the "Substitute for Form 1449 A & B/PTO" and to return it to the undersigned.

Objection to the Drawings

Applicant expressly clarifies for the record that only Figs. 1A, 1B, 1C and 2, as filed in the "Submission Of Formal Drawings" on July 20, 2001, are part of the instant application, and not Figs. 1-9. Figs. 1A, 1B, 1C and 2 are the only Figures described in the specification as filed on February 13, 2001. It appears that Applicant inadvertently attached Figs. 1-9 to the

application as filed on February 13, 2001. Applicant apologizes for any confusion and inconvenience this may have caused.

The Claim Rejections under 35 U.S.C. § 103

Fig. 1A of the present application shows a reflector 1, which has a transparent film 11, an adhesive layer 12, and a layer 13 of a structure of grooves A having optical path changing slopes A1. As clearly shown in Fig. 1A, the adhesive layer 12 is arranged on one surface of the transparent film 11, and the layer 13 of structures of grooves is arranged at the other, opposing surface of the transparent film 11.¹

Independent claim 1 is directed to a reflector, which includes, among other things, a transparent film; an adhesive layer disposed on one surface of the transparent film; and a groove structure that is provided on the other surface of the transparent film (wherein the groove structure has a plurality of grooves including optical path changing slopes).

In the “Response to Arguments” section on page 8 of the present Office Action (see “Examiner’s response to argument No. 2”), the Examiner equates the transparent rear plate 21 near the rear polarizer 28, as shown in Figs. 1 and 2 of the Akins reference, with the “transparent film” recited in claim 1. Further, in the item 5 of the present Office Action, the Examiner

¹ See specification, page 8, ln. 9-18

equates the “adhesive layer” recited in claim 1 with Akins’ transparent adhesive 30. The Examiner further equates the “groove structure” recited in claim 1 with Akins’ ridged surface 32.

First, Applicant notes that, as clearly shown in Figs. 1 and 2 of the Akins reference, the transparent adhesive 30 and the ridged surface 32 are not disposed on any surface of the transparent rear plate 21, contrary to what is claimed in claim 1. Rather, as shown in Figs. 1 and 2, the rear polarizer 28 is interposed between the transparent rear plate 21 and the transparent adhesive 30 and the ridged surface 32.

Second, Applicant notes that the transparent adhesive 30 and the ridged surface 32 are not arranged on different sides of the transparent rear plate 21. Rather, both structures are arranged on the same side of the transparent rear plate 21, namely below the transparent rear plate 21. Claim 1, however, recites that the adhesive layer is disposed on one surface of the transparent film, whereas the groove structure is provided on the other surface of the transparent film.

For at least these reasons, Applicant submits that independent claim 1 is patentable over the prior art made of record.

Independent claim 11 recites a reflector, including, among other things, a transparent film having two surfaces, wherein an adhesive layer is disposed on one surface of the transparent film, and wherein a groove structure is provided on the other surface of the transparent film. Therefore, Applicant submits that patentability arguments analogous to those presented in connection with the patentability of claim 1 apply to claim 11 with equal force.

Further, Applicant notes that the Akins reflector is designed to reflect the external light made incident from the oblique direction towards the frontal direction. In other words, the external light is reflected by the prismatic structure 10 with an angle different from the angle reflected at the surface of the panel. As far as this reflection for external light is concerned, the inclination angle of the prismatic structure is not made 21 degrees or more.

For example, in the case of light made incident from the frontal direction, if the prism angle is 21 degrees or more, the light is confined due to the total reflection based on the refractive index difference between the panel surface and air (when assuming the refractive index of the medium is 1.5, which is a refractive index of ordinary optical film). If the refractive index is larger than 1.5, it is necessary to make the prism angle smaller. The prismatic structure is formed over the whole surface in Akins, so there is not any other function than the directive reflector. Accordingly, one of ordinary skill in the art at the time of invention would have understood that the prism angle of Akins is 21 degrees or less. As such, it would not have been obvious for one of ordinary skill in the art at the time of invention to set the inclination angle range as recited in claim 1 based on the disclosure of Akins. The reflector according to the present invention is adapted for an LCD in which light is transmitted via a liquid crystal cell. In other words, the reflector is used for emitting light traveling through the cell. The light incident from the frontal direction is reflected in the lateral direction by the prismatic structure according to the present invention and it converts into the light traveling through the cell. Almost all of the external light transmits through the flat portions of the prism and light is reflected by the reflection layer at the lowest end. This function is totally different from the function of Akins.

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Finally, the dependent claims are patentable at least by virtue of dependency from their respective independent claims.

Conclusion:

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

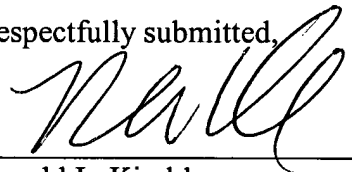
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Respectfully submitted,



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